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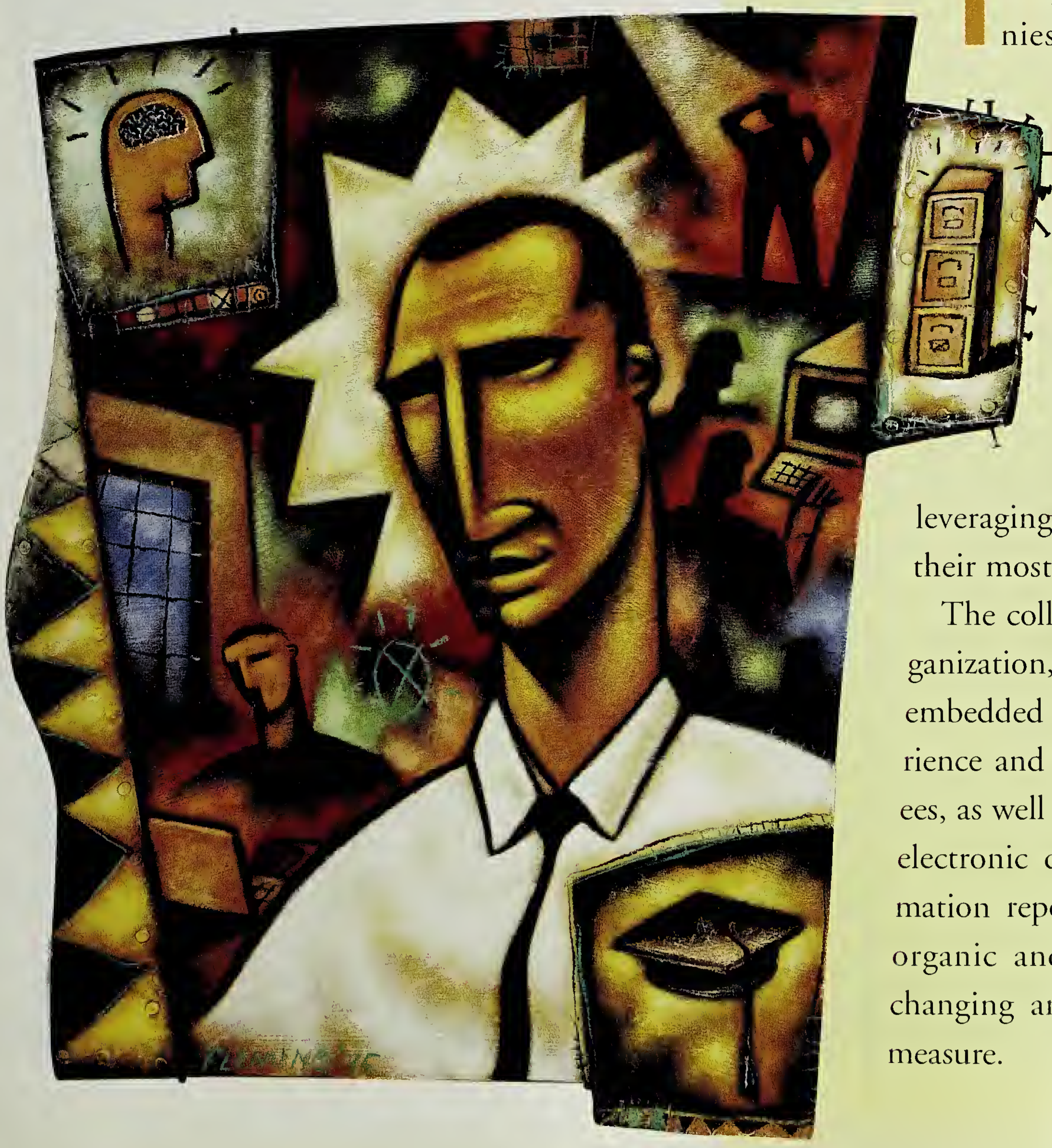
·Leadership Series·

Knowledge, Information, Learning and the IS Manager

By Christopher Gopal and Joseph Gagnon



Today's well-managed companies are making remarkable strides in getting the most out of their people, technology, capital and other organizational assets. But even the most successful companies remain, at best, naive, and at worst, negligent, in managing and leveraging what is almost certainly their most valuable asset: knowledge.

The collective knowledge of an organization, its intellectual capital, is embedded in the personal skills, experience and brainpower of its employees, as well as in its processes, policies, electronic databases and other information repositories. Knowledge is an organic and intangible entity, ever-changing and virtually impossible to measure.

In today's service-oriented, information-intensive economy, intellectual capital is a critical resource that can help companies forge sustainable, renewable competitive advantages. Like financial capital, it must be accumulated, cultivated and managed in an active, thoughtful way. But unlike financial capital, it is routinely squandered by even the most competent firms.

Most senior executives readily admit that their companies probably use only a small portion, in many cases as little as 20%, of their potential organizational knowledge. The reason that this valuable asset is left under developed is because intellectual capital can be extremely difficult to find and identify. It's filed away on hard drives, tucked inside desk drawers, or left to roll around inside people's heads.

IS executives can take the lead in tapping their company's bank of knowledge.

The result: 80% of the huge sum of individual knowledge that a company possesses is left untapped, while a relatively small amount of this collective knowledge is actually turned into intellectual capital and put to use.

Recognizing that squandered intellectual capital is an enormous loss, a handful of progressive companies including Bechtel, British Petroleum, Hughes Space & Communications and Monsanto are beginning to manage the vast stores of knowledge within their organizations in a strategic, formal manner.

Some companies are establishing formal knowledge management functions and assigning executives from line groups or relevant support groups to lead them. The Canadian Imperial Bank of Commerce, for example, has created the position of Vice President, Learning and Organizational Development; Dow Chemical now has a Director of Intellectual Asset Management; and Ernst & Young has a Chief Knowledge Officer.

Other companies, like General Motors and Hewlett-Packard, are relying on visionary CIOs to expand their responsibilities beyond mere information technology. They are taking on the broader challenge of improving the way in which their companies manage and leverage organizational knowledge.

Indeed, knowledge management is a promising new area where IS executives can re-establish a leadership role within their organizations; roles that have been diminished over the past several years by a host of technological and organizational factors. To ensure a place at tomorrow's corporate table, IS managers should focus on managing and supporting three distinct but highly interrelated areas:

- **Knowledge**, or intellectual capital
- **Information**, which is the raw material of knowledge
- **Learning**, which is the process of refreshing and updating knowledge

KNOWLEDGE MANAGEMENT

Effective knowledge management, like effective management of any kind, starts with a strategy. An organization can begin to define its knowledge management objectives only with a clear idea of what the business as a whole is attempting to achieve. As part of this initial strategic planning process, companies must answer three questions:

1. What categories of knowledge are needed to support the organization's overall business strategy?

This critical first step requires a comprehensive review of the company's value chain to determine which departments and activities are most critical to the success of the business, and how an enhanced knowledge-base might add value to these vital departments and activities.

A domestic manufacturer, for example, that is looking to break into international markets needs to recognize there will be new knowledge requirements to understand how distribution is accomplished in various regions around the world. Likewise, a publishing company that recognizes its future growth lies in various new emerging media will need to fill gaps in its technological knowledge. These gaps are created by entering a new market. Even a firm whose strategy is not dramatically changing must fully appreciate how knowledge fuels its existing business to keep up with those companies that are capitalizing on their knowledge resources.

2. What is the current state of the company's knowledge? The company should examine how it currently assesses knowledge; understand what role knowledge

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plays in the overall business strategy; locate important knowledge that exists but has not yet been tapped; and identify "knowledge gaps" – that is, knowledge that is important but cannot be found within the organization.

The above publishing company, for instance, may find that it has many knowledge strengths, such as content familiarity and editing skills, that can be migrated to support its new market strategy. But, at the same time, it may discover it has real shortfalls in electronic design or complex project management as it moves from the printed page to electronic media.

3. How can knowledge gaps be filled? Finding ways to transform the company's current knowledge base into a new and more powerful one is the central challenge for new knowledge managers. And it may just be the area in which IS leaders have the most to offer. Because closing gaps is primarily achieved by connecting knowledgeable people from both inside and outside the company, IS leaders can draw on their established networking skills and use their traditional cross-functional roles to give them unique perspectives on effective knowledge-base solutions.

In one case, an architectural/engineering firm found itself under pressure as clients began demanding fixed-price contracts instead of traditional cost-plus arrangements. The firm needed to ensure more predictability and efficiency in its design and construction projects. It was clear that project teams working independently weren't benefiting from each other's experience.

A group of executives, including the IS manager, was formed to implement a knowledge management process that would allow project teams, at the point of making key design decisions, access to the relevant cumulative intelligence from inside and outside the organization. The company's knowledge management process is highly effective, because it focuses on key decision points, making the knowledge easily accessible through a firmwide computing and communications infrastructure at the precise moment that it is needed.

FIVE STEPS TO BETTER KNOWLEDGE MANAGEMENT

MANAGING KNOWLEDGE at the organizational level lets people benefit from knowledge that comes from the experiences of others, both within and outside the organization. To successfully manage knowledge, focus on five tasks:

GENERATE KNOWLEDGE. This includes the creation of new ideas, the development of new processes, the recognition of previously unseen patterns and the synthesis of separate disciplines. Organizations that excel in generating knowledge reward innovation, encourage experimentation and reflection, and put new knowledge to work as it is generated.

ACCESS KNOWLEDGE. Knowledge remains isolated and essentially useless unless it is easily accessible. Companies can improve accessibility by providing locational tools, ranging from the simple (networks that direct people to other more knowledgeable people) to the elaborate (computerized databases and search tools).

REPRESENT AND EMBED KNOWLEDGE. To capture the knowledge of an individual and turn it into an organizational asset, companies must recast knowledge in a form that can be shared in a number of ways, such as training manuals, videotaped presentations or expert-system software. These techniques will preserve the knowledge of key individuals, even if they leave the company.

FACILITATE KNOWLEDGE. A company must create a culture that overtly emphasizes the important role that knowledge plays in day-to-day business success. What's missing in many organizations is a straightforward articulation of the role and value of knowledge. As a result, experienced individuals often take the knowledge they possess for granted, failing to share it with less experienced people.

TRANSFER KNOWLEDGE. Companies are using a wide variety of new teaching methods tailored to individual learning styles, that transfer knowledge and lessons learned from one part of the company to others. But keep in mind that to make knowledge transfers worthwhile, companies must consider whether the success of one department or product line can be replicated in another. In today's global economy, companies must be sensitive to whether knowledge and processes that make sense in the United States will also work in Europe or Asia.

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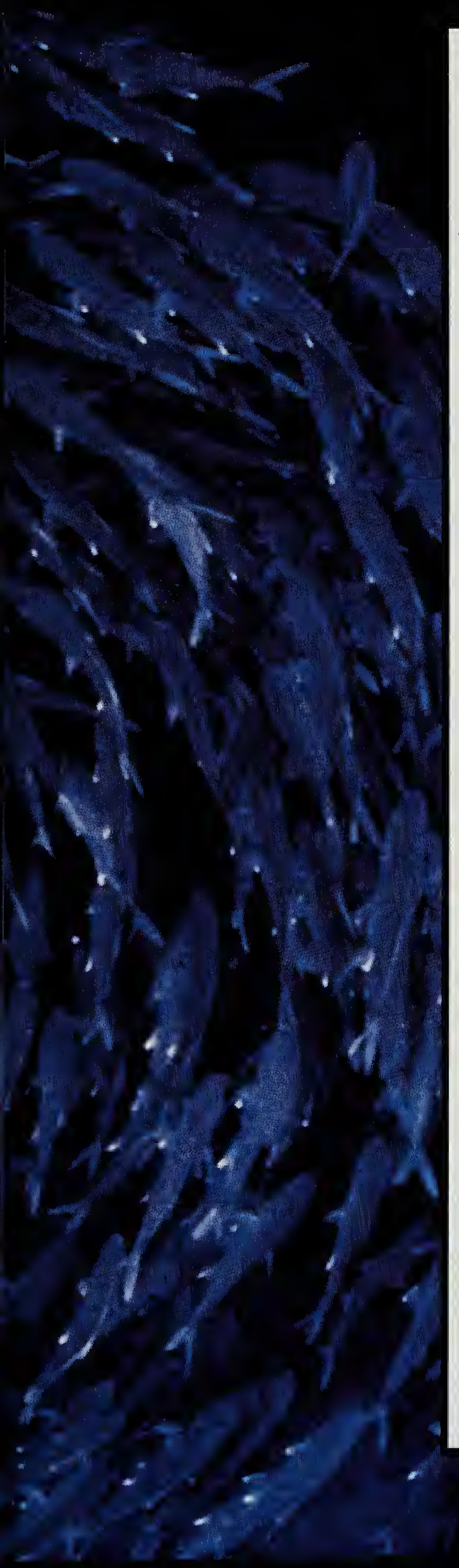

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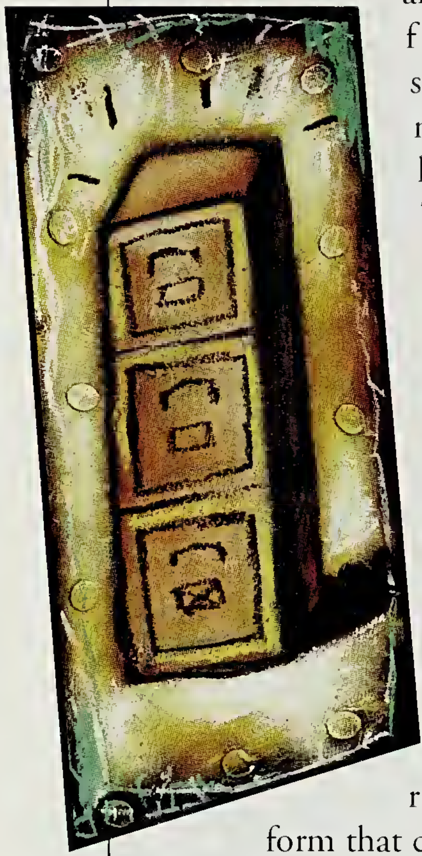
INFORMATION MANAGEMENT

The nuts-and-bolts job of managing information — the raw material from which knowledge is produced — is also a critical task for companies seeking to optimize their intellectual capital. This raw material must first be identified and then extracted from myriad sources both inside and outside the organization. Then the information needs to be "coined," or captured, and represented in a form that can be shared, updated and applied in areas of the organization that need it most.



To manage information effectively, IS managers should concentrate on five tasks:

1. Setting goals. The business strategy and business are the best places to start for determining what information is actually important. Frito-Lay wanted to keep the focus of the company on account profitability, so it set a goal of updating actual sales-by-store at the end of every business day.

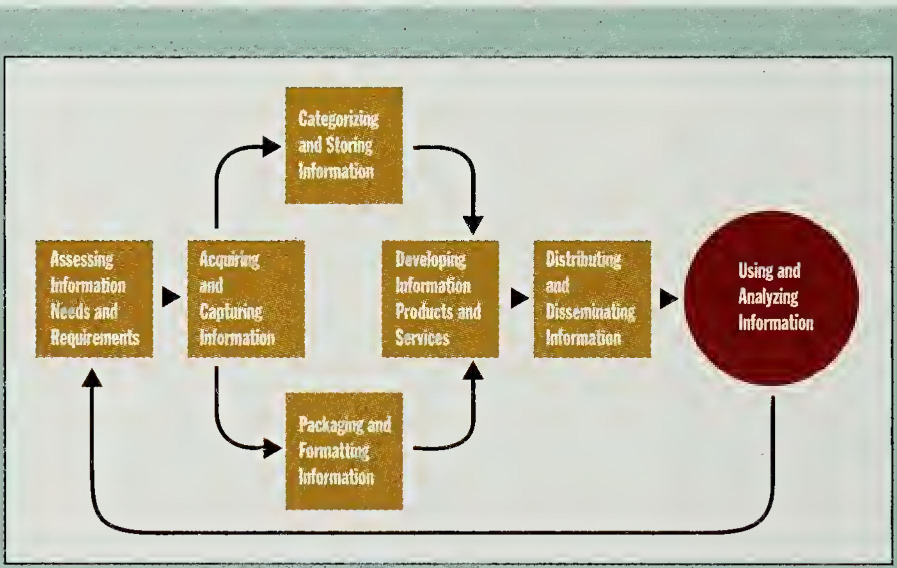
2. Defining processes. Information management, like other management areas, can be defined as a set of generic processes. (See "A Process Model of Information Management" at right.) Xerox made information management, among other processes, more real and possible by articulating it in such terms. This enabled Xerox to provide an infrastructure that allowed its various quality and re-engineering initiatives to work toward the same goals.

3. Building infrastructure. Of course, computer and communications technology will represent the largest and most expensive portion of the infrastructure in most organizations. But as Jane Linder, director of business development at Polaroid, has proven, a full-blown information infrastructure also includes documents, human networks and other non-IT elements. As she has explained in a paper with Thomas Davenport, director of the Information Management Program at the University of Texas at Austin, information management is an unrealistic challenge unless supported explicitly by an infrastructure composed of people, process and technology.

4. Motivating and rewarding people. No attempt to improve information sharing will succeed if the people involved are still encouraged by rewards and compensation to hoard. At Ernst & Young, a part of each consultant's compensation is contingent on "knowledge sharing" activities. The firm hopes to dissuade individuals from viewing personal knowledge as an asset to be guarded.

5. Measuring results. If measuring IT value is difficult, that challenge is compounded when the subject is more general information. The best way to proceed is to attach milestones and feedback mechanisms to information management projects and document even anecdotal evidence that goals are being met.

For example, one of the world's leading computer companies recently put its information management efforts to task. Executives were skeptical about whether they had the most reliable and up-to-date market information for making strategic decisions. To address this issue, the company dedicated a group of information special-


Assessing Information Needs and Requirements
Acquiring and Capturing Information
Categorizing and Storing Information
Packaging and Formatting Information
Developing Information Products and Services
Distributing and Disseminating Information
Using and Analyzing Information

A PROCESS MODEL OF INFORMATION MANAGEMENT

Assessing information needs and requirements. Identify what information should be available to managers and decision-makers.

Acquiring and capturing information. Implement mechanisms that can capture and continually update information.

Categorizing and storing information. Determine whether the information has a natural structure that dictates how it should be categorized and stored, and whether decision-makers can and will use it.

Packaging and formatting information. Decide how the information should best be packaged and presented (e.g. book, videotape, computer disk) to ensure it is useful for potential users.

Developing information products and services. Be proactive in filling gaps in the organization's knowledge base by creating new products and services, such as industry reports and new software tools.

Distributing and disseminating information. Get information to the right people through the use of computer and communications technology, speeches, seminars, printed publications and other medium.

Using and analyzing information. Examine how users actually use the information to improve content, access and other aspects of information in the future.

ists to gather and make sense of all the competing, overlapping and sometimes contradictory information being disseminated.

The results? A much more confident management team that is able to reach consensus when it makes decisions. One key element to this success was the ability of the IS force to bridge the gap between technology and how people use the technology. In fact, now an IS specialist participates in every strategic planning session.

LEARNING MANAGEMENT

Companies that have built competitive advantages through effective knowledge and information management must continuously refresh and update their intellectual capital. This is the process of organizational learning.

Like individuals, organizations learn from experience — they try something, note the results, and internalize them — but at the organizational level, this process is far from automatic. IS managers can make it by focusing on the points detailed below:

1. *Constant experimentation.* No learning can occur in an environment devoid of risks. IS managers know that the risks of experimentation can be mitigated by an ability to rapidly prototype and test new propositions. This expertise can be shared with knowledge workers, offering them a time-tested paradigm for effective organizational learning.
2. *Careful measurement.* What results did the experiment yield? Outcomes must be quantified and documented for the company to learn what works.
3. *Broad communication.* Communication is crucial. Without it, learning stops at the individual level, and any new knowledge fails to become an asset that the entire organization can use. IS managers are already expert at the tools that support broad organizational communication; they are uniquely qualified to encourage this kind communication.
4. *Socialization.* Fostering a corporate culture that values and rewards learning and the sharing of information must be done on both the individual and organizational levels. This type of culture can be achieved in various ways, but one of the most interesting considerations is the cultural impact of groupware, such as Lotus Notes. Groupware may not introduce teamwork overnight to a firm steeped in internal competition, but it encourages collaboration.

SUCCESS FACTORS

To ensure success, the IS manager must be able to show top managment how knowledge management objectives are closely aligned with overall strategic goals, like reducing time to market, lowering research and development costs, and boosting manufacturing productivity. IS leaders must become involved with many different facets of the company to identify the wide variety of needs. A management team concerned with product innovation, for example, will gladly listen to ideas for developing new knowledge that supports its concerns. Firms that thrive on the ability to replicate success will value proposals for sharing best practices.

Strong and consistent leadership is another critical success factor. Companies that have achieved the most success in knowledge management are typically those that have appointed a senior-level executive to assume the mantle of full-time chief knowledge officer. In this dedicated role, the chief knowledge officer can concentrate exclusively on knowledge initiatives and focus on organizationwide knowledge issues that may cut across many departments, functions and processes.

Because information technology is almost always a key tool in knowledge and information management, many companies now look first to their IS departments for guidance. For many CIOs and other IS executives, this represents a remarkable opportunity to take an early leadership role in the expanding area of intellectual capital.

But be warned: IS executives will succeed only if they take a broad-minded perspective. That is, only if they see that enhancing organizational knowledge is the ultimate goal, and that information technology is just one of many tools that can help their organizations seize this critical competitive advantage. ♦

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